

The references cited by the Examiner along with the Examiner's comments have been diligently studied. Reconsideration of the application in light of this Amendment is respectfully requested.

Claim 1 has been amended. Claims 6-10 have been cancelled. Claim 12 has been added. Therefore, claims 1-5, 11, and 12 are under active consideration.

In order to reduce the number of issues involved, claims 6-9 have been cancelled. Also, claim 10 which was objected to as dependent on a rejected claim has been rewritten in independent form and renumbered as claim 12.

Applicant has invented a miniature appliance leakage current interrupter (ALCI) which interrupts the flow of current through a pair of lines extending between a source of power and a load. The ALCI comprises a circuit breaker having a pair of normally closed switches, one switch being located in each of the pair of lines between the source of power and the load. The circuit breaker is connected to a relay circuit which selectively opens the pair of normally closed switches. The relay circuit is connected to a fault detection circuit which detects the presence of a ground fault condition in the pair of lines. When the ground fault condition detected exceeds a predetermined value, an integrated circuit chip in the fault detection circuit causes the relay circuit to open the circuit breaker. The ALCI further includes a single-sided circuit board which is housed within a generally rectangular plug. The circuit board has a bottom surface and a top surface, the top surface having a pattern of conductive paths. The circuit components of the ALCI are mounted on the circuit board with the integrated circuit of the fault detection circuit surface mounted on the top surface.

Claims 1 and 11 stand rejected under 35 US 102(e) as being anticipated by McDonald et al. (U.S. Patent No. 5,661,623). In support of the rejection the Examiner stated, "McDonald et al. disclose an appliance leakage current interrupter (Fig. 7) comprising a circuit breaker having a pair of switches, a relay circuit (180), a fault detection circuit (212,52 and 54) comprising an Integrated chip (212) and a transformer (52, 54), a single sided circuit board (Fig. 5, 421) having a pattern of conductive path and said integrated circuit chip is surface mounted on the second side (lower portion) of the circuit board and the transformer and the relay on the first side (upper portion) of the circuit board (Figure 5, column 10, lines 22-40)."

This rejection is respectfully traversed.

McDonald et al discloses a ground fault circuit interrupter (GFCI) line cord plug which utilizes an electronically latched relay, rather than a circuit breaker or other type of mechanical latching device, to interrupt the AC load power when a ground fault condition occurs. In order to reduce the size of the relay and minimize the cost and complexity of the GFCI plug, the fixed and movable relay contact structures are mounted directly to the circuit board which carries the remaining components of the GFCI circuit. In a preferred embodiment, the fixed relay contact structures are integral with the plug blades of the GFCI plug. The movable relay contact structures preferably comprise deflectable spring arms which are preloaded when the relay contacts are in the open position in order to control the contact gap, and which are deflected past the point of contact closure when the relay contacts are in the closed position in order to increase in closing force. The principal electrical components of the GFCI plug, including the relay contacts, relay coil and sensing

transformer are mounted on the circuit board in a generally tandem or in-line arrangement in order to minimize the dimensions of the plug.

In order to avoid any accidental reading of claim 1 on McDonald, applicant has amended claim 1 to recite that the integrated circuit chip is mounted on the top surface rather than the second side of the circuit board and that the relay circuit and transformer are mounted on the bottom surface rather than the first side of the circuit board. This is clearly not shown, taught or suggested in McDonald.

Withdrawal of the rejection of claims 1 and 11 under 35 USC 102(e) is respectfully urged.

Claims 2-9 stand rejected under 35 USC 103(a) as being unpatentable over McDonald et al.

In support of the rejection, the Examiner stated,

"a. regarding claim 2, McDonald et al. further disclose said transformer including a common core (220, 222), a primary winding, and a secondary winding (224, 226). However, McDonald et al. does not specifically disclose the transformer having three laminated layers and the primary winding being wrapped twice around the core of the transformer. It would have been obvious to one having ordinary skill in the art to modify the primary winding of the transformer to minimize the dimensions of the appliance leakage current interrupter (abstract, last 2 lines) which is not a matter of ordinary invention (see *in re yount, 80 USPQ141*).

b. Regarding claims 3 and 4, McDonald et al. further disclose the appliance leakage current interrupter (Figures 1-5) comprising generally rectangular-shaped housing (10) being

mounted on an end of an electrical cord (40); a prong assembly (Figure 2) comprising a pair of contact prongs (22, 24) which extend through said housing and a pair of conductive bracket arms (Figure 5, 44 and 46).

c. Regarding claims 5, McDonald et al. does not specifically disclose the pair of prongs extend out from said housing at an angle of 180 degrees. It would have been obvious to one having ordinary skill in the art to modify the prongs to extend at an angle of 180 degrees to provide an appliance leakage current interrupter which is relatively small and compact, allowing it to be incorporated into an AC line cord plug (column 2, lines 46-49) since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein 8 USPQ 167.

d. Regarding claims 6, McDonald et al. further disclose the pair of prongs extended out from said housing an angle of 90 degrees from the longitudinal axis of the cord (Figure 2).

e. Regarding claims 7-9, McDonald et al. further discloses a power supply circuit 204 comprising a metal oxide varistor (202), a test circuit (34, 258); and said relay circuit comprises a solenoid (180) and a rectifier 214 column 10, lines 47-50 and the portion of claim 1, column 17, line 65 through column 16, line 6, and a resetting assembly (36) for resetting said appliance leakage current interrupter after detection of a ground fault.

The rejection is respectfully traversed.

Applicant disagrees with the Examiner's comments regarding claim 2. Nowhere in McDonald is there any teaching, disclosure or suggestion that the size of the transformer can be made smaller by using 3 laminated rings instead of 5 and then wrapping the wires around

twice instead of once to build up the primary. In the absence of a teaching for these changes it is submitted that it is clearly not obvious to do so. Instead, the only basis for doing this is applicant's own disclosure. Allowance of these claims is respectfully urged for the reason herein stated and in view of the dependency of claim 2 on claim 1 which is considered allowable for the reasons noted above.

Claims 3 and 4 are deemed allowable for the reasons noted above regarding claim 2, on which claims 3 and 4 depend.

Applicant disagrees with the Examiner's comments regarding claim 5. There is absolutely no teaching, disclosure or suggestion in McDonald to have the prongs extend out from the housing at an angle of 180 degrees nor any teaching, disclosure or suggestion in McDonald as to how this could be achieved. McDonald states in column 3, lines 46-49 that it is that it is an object of the invention to provide a GFCI device that is small and compact. McDonald makes no mention concerning having the prongs extend out at 180 degrees or how this could be accomplished. The only basis for his is applicant's own disclosure. Also, this 180 degree version is clearly not a "mere reversal of essential working parts of a device" as stated by the Examiner. Withdrawal of the rejection for this reason and for the dependency of claim 5 on claim 1 is respectfully urged.

Claims 6-9 have been cancelled.

Allowance of the application with claims 1-5, 11 and 12 is earnestly solicited.

If this Amendment does not place the application in allowable form, it is respectfully requested that the Examiner call the undersigned attorney at (508) 877-8588.

Respectfully submitted,



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